

REMARKS

No amendments, cancellations, or additions have been made to the presently claimed case. As such, claims 6-12, 15, 17-27, and 30-35 are currently pending in the case. Further examination and reconsideration of the presently claimed application are respectfully requested.

Allowed Claims

Claims 6-12, 15, 17, 18, 26, 27, and 30-35 were allowed. Applicant appreciates the Examiner's allowance of these claims and eagerly awaits formal allowance of the remaining claims.

Objections to the Claims

Claims 20 and 22-25 were objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form. Applicant sincerely appreciates the Examiner's recognition of the patentable subject matter recited in these claims. As will be set forth below, however, claim 19 and claims dependent therefrom are patentably distinct from the cited art and, thus, is in condition for allowance. Accordingly, removal of this objection is respectfully requested.

Section 103 Rejections

Claims 19 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application No. 2002/0052124 to Raaijmakers et al. (hereinafter referred to as "Raaijmakers") in view of U.S. Patent No. 6,319,775 to Halliyal et al. (hereinafter referred to as "Halliyal"). To establish a *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974), MPEP 2143.03. Obviousness cannot be established by combining or modifying the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion or incentive to do so. *In re Bond*, 910 F. 2d 81, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990). The cited art does not teach or suggest all limitations of the currently pending claims, some distinctive limitations of which are set forth in more detail below.

None of the cited art, taken alone or in combination, teaches or suggests growing an oxide film in a first chamber at a first temperature, transferring the semiconductor topography from the first chamber to a second chamber while exposing the semiconductor topography to a substantially similar temperature as the first temperature, and forming a nitride layer upon the oxide film in the second chamber at a second temperature. Claim 19 recites:

A method for forming an oxide-nitride stack, comprising: growing an oxide film in a first chamber at a first temperature; transferring the semiconductor topography from said first chamber to a second chamber, wherein said transferring comprises exposing the semiconductor topography to a substantially similar temperature as said first temperature; and forming a nitride layer upon the oxide film in said second chamber at a second temperature.

As noted in the Office Action, Raaijmakers fails to teach transferring a topography to a different chamber between depositions of oxide and nitride layers. The Examiner, however, cites Halliyal as disclosing a process for fabricating an ONO structure which requires the transfer of a topography to different chambers for the depositions of the layers of the structure and, based upon such teachings, deems it would be obvious to one skilled in the art to combine Halliyal with Raaijmakers to teach the limitations of claim 19. Such speculation, however, is traversed as set forth in more detail below.

To begin with, it is asserted that Halliyal does not teach the transfer process specified in claim 19 and, therefore, the combination of Halliyal and Raaijmakers cannot teach the limitations of claim 19. In particular, there is no teaching or suggestion within Halliyal of transferring a topography at a temperature similar to a temperature at which an oxide layer was previously deposited. More specifically, there is no mention in Halliyal of a transfer process between the depositions of first silicon oxide layer 28 and silicon nitride layer 30, much less the temperature at which such a transfer process may be conducted. Although Halliyal teaches transferring the topography between the depositions of silicon nitride layer 30 and second silicon oxide layer 32 such that the silicon nitride layer is not exposed to an ambient atmosphere, such a teaching does not disclose the temperature at which the transfer takes place. In addition, it would not be obvious to one skilled in the art to apply such a transfer process between a growth of an oxide layer and a subsequent deposition of a nitride layer, since the transfer process is specifically used to prevent exposure of a deposited silicon nitride layer. The Office Action references claims 5 and 9 in Halliyal as disclosing the claimed transfer process, but such claims merely discuss specifications of a nitridation process of second silicon oxide layer 32. In particular, claim 5 specifies the nitridation process includes flowing a nitrogen-containing gas into a rapid thermal CVD process apparatus. In addition, claim 9 specifies the nitrogen-containing gas may include ammonia, nitrogen oxide or nitrous oxide. There is no teaching or suggestion within either of such claims of

transferring the topography prior to the nitridation process at a temperature similar to a temperature at which an oxide layer was previously deposited. Consequently, Halliyal does not teach or suggest the transfer process specified in claim 19.

Since neither Halliyal nor Raaijmakers teaches the transfer process recited in claim 19, no combination of such references can teach the limitations of claim 19. To establish a *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974), MPEP 2143.03. Furthermore, there is no motivation to modify Raaijmakers to include a transfer process between the growth of an oxide layer and the deposition of a nitride layer, since Raaijmakers specifically teaches that such processes are performed in situ in the same processing chamber without removal therefrom between deposition steps. In particular, Raaijmakers teaches, "A first dielectric layer is grown from a semiconductor substrate in a single-substrate processing chamber. A second dielectric layer is deposited over the first dielectric layer without removing the substrate from the processing chamber." (Raaijmakers, paragraph 0020). Raaijmakers further emphasizes the in situ requirement in paragraph 0031, "... the present disclosure provides methods of fabricating integrated circuits in which multiple process steps are conducted in situ, that is, without removing the substrate from the process chamber between steps. 'In situ', as used herein, refers to sequential processes conducted in the same process chamber, and is not meant to encompass sequential processes conducted in multiple chambers within a cluster platform environment." If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) MPEP 2143.01.

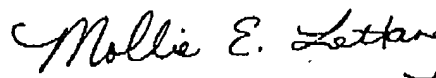
For at least the reasons stated above, none of the cited, taken alone or in combination, teaches or suggests the limitations of claim 19. Therefore, claim 19 and claims dependent therefrom are asserted to be patentably distinct over the cited art. Accordingly, removal of this rejection is respectfully requested.

CONCLUSION

This response constitutes a complete response to the issues raised in the Office Action mailed December 17, 2004. In view of the remarks traversing the rejections, Applicants assert that pending claims 6-12, 15, 17-27, and 30-35 are in condition for allowance. If the Examiner has any questions, comments, or suggestions, the undersigned attorney earnestly requests a telephone conference.

No fees are required for filing this amendment; however, the Commissioner is authorized to charge any additional fees, which may be required, or credit any overpayment, to Daffer McDaniel LLP Deposit Account No. 50-3268/5298-08000.

Respectfully submitted,



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